



**CULLEN & CO.**

— Patent & Trade Mark Attorneys —

GPO Box 1074  
Brisbane, QLD 4001  
AUSTRALIA

Speed Dial \*2536  
Customer No: 40000343

Telephone: 07 3011 5555

Facsimile: 07 3229 3384

E-mail: mail@cullens.com.au

12 May 2004

**The Commissioner of Patents**  
Woden, A.C.T. 2606

Dear Commissioner,

Re: International Patent Application No. PCT/AU03/00642  
Title: A Soil Additive  
Applicants: Huw Treers and Donna Sheehy  
Our Ref: 02701PC/GC/RG

We refer to the Written Opinion dated 16 February 2004, and enclose replacement pages 27 to 29 together with a marked-up copy of the amended pages for your convenience.

The amended claims clearly distinguish the present invention from the prior art documents cited by the Examiner in that the invention of the present application is now directed to a blend containing four rocks, namely basalt, limestone, dolomite and claystone.

The claims of the present application have been amended to:

- remove andesite from the claims; and
- limit the blend to containing at least basalt, limestone, dolomite and claystone.

The claims of the present application have been amended as follows (claim numbers relate to claims as originally filed):

- Claim 1 has been amended;
- Claims 2 to 5 are unchanged;
- Original Claims 6 to 9 have been deleted;
- Original Claims 10 to 12 have been amended and renumbered as Claims 6 to 8;
- Claims 13 to 23 (New Claims 9 to 19) have been renumbered and amended to correct their dependencies only; and

The Commissioner of Patents

12 May 2004

- New Claim 20 has been added.

Neither of the prior art documents teach a blend of these four rocks. In particular, document D1 teaches a soil conditioner comprising a fertiliser and one or more of dolomite, basalt and limestone and document D2 teaches a fertiliser comprising one or more of limestone, dolomite and andesite. Neither of the citations discloses or suggests the combination of the four rocks now claimed by the application in suit, and therefore, the applicant suggests the claims as amended are novel.

Reconsideration of the Opinion is respectfully solicited.

Yours respectfully,  
**CULLEN & CO.**



**IAN de JONGE**

Enc. Replacement pages 27 to 29  
Marked-up copy of the amended pages

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**CLAIMS:**

1. A soil additive produced from crushing, grinding and blending specified source rocks wherein a final product contains at least three of andesite, basalt, limestone, dolomite and claystone.
- 5 2. A soil additive as claimed in claim 1 wherein the final product has a modal abundance of basalt in the range of 11% to 91%, limestone in the range of 1% to 59%, dolomite in the range of 0.025% to 30% and claystone in the range of 0% to 17.5%.
- 10 3. A soil additive as claimed in claim 2 wherein the final product has a modal abundance of basalt in the range of 50% to 90.5%, limestone in the range of 1% to 22.5%, dolomite in the range of 0.025% to 12.5% and claystone in the range of 0% to 17.5%.
- 15 4. A soil additive as claimed in claim 2 wherein the final product has a modal abundance of basalt in the range of 50% to 81.5%, limestone in the range of 3% to 28.5%, dolomite in the range of 0.5% to 18.5% and claystone in the range of 0% to 12%.
- 20 5. A soil additive as claimed in claim 2 wherein the final product has a modal abundance of basalt in the range of 11% to 79.5%, limestone in the range of 10% to 59%, dolomite in the range of 1% to 30% and claystone in the range of 0% to 8%.
- 25 6. A soil additive as claimed in claim 1 wherein the final product has a modal abundance of andesite in the range of 0-20%, limestone in the range of 0-45%, dolomite in the range of 0-20%, and basalt in the range of 50-85%.
7. A soil additive as claimed in claim 6 wherein the final product has a modal abundance of andesite in the range of 0-20%, limestone in the range of 0-30%, dolomite in the range of 0-10%, and basalt in the range of 60-85%.
8. A soil additive as claimed in claim 6 wherein the final product has a modal abundance of andesite in the range of 0-15%, limestone in the range of 0-45%, dolomite in the range of 0-15%, and basalt in the range of 55-80%.
- 30 9. A soil additive as claimed in claim 6 wherein the final product has a modal abundance of andesite in the range of 0-15%, limestone in the range of 0-45%, dolomite in the range of 0-20%, and basalt in the range of 50-75%.
10. 6. A soil additive produced from blending source rocks in the form

of blending crushing waters produced by crushing a first source rock containing at least one of ~~andesite, limestone, dolomite, basalt and claystone~~ with crushing waters produced by crushing at least ~~two-three~~ second source rocks containing chosen from the group of andesite, either limestone, dolomite, basalt and claystone to form a final blend containing limestone, dolomite, basalt and claystone.

11-7. A method for producing a soil additive comprising the steps of

- a. conducting analysis of mineralogy and/or crystalline structure of bulk rocks to determine the applicability of the bulk rocks to be used as a limestone source rock, a basalt source rock, a dolomite source rock or a claystone source rock,
- b. crushing each of the source rocks identified in the analysis,
- c. size analysis of each of the source rocks to determine whether each source rock is of a predetermined size,
- d. grinding of each of the source rocks, and
- e. blending of the source rocks to give a final blend containing limestone, basalt, dolomite and claystone.

12-8. The method for producing a soil additive as claimed in claim 11 wherein each of the source rocks are processed in a separate processing stream, being a limestone processing stream, a basalt processing stream, a dolomite processing stream ~~or~~ and a claystone processing stream, to produce a product, the products from each separate processing stream combined to form the final blend.

13-9. The method for producing a soil additive as claimed in claim 11 wherein the crushing step reduces the source rocks to a particular size fraction.

14-10. The method for producing a soil additive as claimed in claim 11 wherein the size fraction is at or below 20mm.

15-11. The method for producing a soil additive as claimed in claim 12 wherein after the crushing stage, each processing stream is subjected to size determination to ensure the correct size fraction is obtained during the crushing stage.

16-12. The method for producing a soil additive as claimed in claim 15

11 wherein the basalt and dolomite processing streams are subjected to neutralising value and/or attribute analysis.

17-13. The method for producing a soil additive as claimed in claim 45 11 wherein each processing stream is subjected to at least one drying step to remove at least some moisture from the respective processing streams.

18-14. The method for producing a soil additive as claimed in claim 44 7 wherein during the grinding step, each processing stream is finely ground to give a grinding size fraction in the size range of 0.030 millimetres up to 1.5 millimetres.

19-15. The method for producing a soil additive as claimed in claim 48 14 wherein size fraction ranges of the basalt processing stream is from 0.030 millimetres to 0.080 millimetres after the grinding step.

20-16. The method for producing a soil additive as claimed in claim 48 14 wherein size fraction ranges of the limestone processing stream is from 0.030 millimetres to 0.090 millimetres after the grinding step.

24-17. The method for producing a soil additive as claimed in claim 48 14 wherein size fraction ranges of the dolomite processing stream is from 0.030 millimetres to 0.5 millimetres after the grinding step.

22-18. The method for producing a soil additive as claimed in claim 48 14 wherein size fraction ranges of the claystone processing stream is from 0.040 millimetres to 0.5 millimetres after the grinding step.

23-19. The method for producing a soil additive as claimed in claim 44 7 wherein after the grinding stage, the limestone processing stream is tested for neutralising value and/or attribute analysis to ensure a grain size within the range of 0.030 millimetres to 0.090 millimetres.

20. A soil additive according to claim 1 wherein the final product contains at least basalt, limestone dolomite and claystone in a ratio of approximately 8:3:1:1.

**CLAIMS:**

1. A soil additive produced from crushing, grinding and blending specified source rocks wherein a final product contains at least basalt, limestone, dolomite and claystone.
- 5 2. A soil additive as claimed in claim 1 wherein the final product has a modal abundance of basalt in the range of 11% to 91%, limestone in the range of 1% to 59%, dolomite in the range of 0.025% to 30% and claystone.
3. A soil additive as claimed in claim 2 wherein the final product  
10 has a modal abundance of basalt in the range of 50% to 90.5%, limestone in the range of 1% to 22.5%, dolomite in the range of 0.025% to 12.5% and claystone.
4. A soil additive as claimed in claim 2 wherein the final product  
15 has a modal abundance of basalt in the range of 50% to 81.5%, limestone in the range of 3% to 28.5%, dolomite in the range of 0.5% to 18.5% and claystone.
5. A soil additive as claimed in claim 2 wherein the final product has a modal abundance of basalt in the range of 11% to 79.5%, limestone in the range of 10% to 59%, dolomite in the range of 1% to 30% and claystone.
- 20 6. A soil additive produced from blending source rocks in the form of blending crushing waters produced by crushing a first source rock containing at least one of limestone, dolomite, basalt and claystone with crushing waters produced by crushing at least three second source rocks containing either limestone, dolomite, basalt and claystone to form a final  
25 blend containing limestone, dolomite, basalt and claystone.
7. A method for producing a soil additive comprising the steps of
  - a. conducting analysis of mineralogy and/or crystalline structure of  
30 bulk rocks to determine the applicability of the bulk rocks to be used as a limestone source rock, a basalt source rock, a dolomite source rock or a claystone source rock,
  - b. crushing each of the source rocks identified in the analysis,
  - c. size analysis of each of the source rocks to determine whether each source rock is of a predetermined size,

- d. grinding of each of the source rocks, and
- e. blending of the source rocks to give a final blend containing limestone, basalt, dolomite and claystone.

8. The method for producing a soil additive as claimed in claim 7  
5 wherein each of the source rocks are processed in a separate processing stream, being a limestone processing stream, a basalt processing stream, a dolomite processing stream and a claystone processing stream, to produce a product, the products from each separate processing stream combined to form the final blend.
- 10 9. The method for producing a soil additive as claimed in claim 7 wherein the crushing step reduces the source rocks to a particular size fraction.
10. The method for producing a soil additive as claimed in claim 7 wherein the size fraction is at or below 20mm.
- 15 11. The method for producing a soil additive as claimed in claim 8 wherein after the crushing stage, each processing stream is subjected to size determination to ensure the correct size fraction is obtained during the crushing stage.
12. The method for producing a soil additive as claimed in claim 11  
20 wherein the basalt and dolomite processing streams are subjected to neutralising value and/or attribute analysis.
13. The method for producing a soil additive as claimed in claim 11 wherein each processing stream is subjected to at least one drying step to remove at least some moisture from the respective processing streams.
- 25 14. The method for producing a soil additive as claimed in claim 7 wherein during the grinding step, each processing stream is finely ground to give a grinding size fraction in the size range of 0.030 millimetres up to 1.5 millimetres.
15. The method for producing a soil additive as claimed in claim 14  
30 wherein size fraction ranges of the basalt processing stream is from 0.030 millimetres to 0.080 millimetres after the grinding step.
16. The method for producing a soil additive as claimed in claim 14 wherein size fraction ranges of the limestone processing stream is from 0.030

millimetres to 0.090 millimetres after the grinding step.

17. The method for producing a soil additive as claimed in claim 14 wherein size fraction ranges of the dolomite processing stream is from 0.030 millimetres to 0.5 millimetres after the grinding step.

5 18. The method for producing a soil additive as claimed in claim 14 wherein size fraction ranges of the claystone processing stream is from 0.040 millimetres to 0.5 millimetres after the grinding step.

19. The method for producing a soil additive as claimed in claim 7 wherein after the grinding stage, the limestone processing stream is tested for  
10 neutralising value and/or attribute analysis to ensure a grain size within the range of 0.030 millimetres to 0.090 millimetres.

20. A soil additive according to claim 1 wherein the final product contains at least basalt, limestone dolomite and claystone in a ratio of approximately 8:3:1:1.



**CLAIMS:**

1. A soil additive produced from crushing, grinding and blending specified source rocks wherein a final product contains at least basalt, limestone, dolomite and claystone.
- 5 2. A soil additive as claimed in claim 1 wherein the final product has a modal abundance of basalt in the range of 11% to 91%, limestone in the range of 1% to 59%, dolomite in the range of 0.025% to 30% and claystone.
- 10 3. A soil additive as claimed in claim 2 wherein the final product has a modal abundance of basalt in the range of 50% to 90.5%, limestone in the range of 1% to 22.5%, dolomite in the range of 0.025% to 12.5% and claystone.
- 15 4. A soil additive as claimed in claim 2 wherein the final product has a modal abundance of basalt in the range of 50% to 81.5%, limestone in the range of 3% to 28.5%, dolomite in the range of 0.5% to 18.5% and claystone.
5. A soil additive as claimed in claim 2 wherein the final product has a modal abundance of basalt in the range of 11% to 79.5%, limestone in the range of 10% to 59%, dolomite in the range of 1% to 30% and claystone.
- 20 6. A soil additive produced from blending source rocks in the form of blending crushing waters produced by crushing a first source rock containing at least one of limestone, dolomite, basalt and claystone with crushing waters produced by crushing at least three second source rocks containing either limestone, dolomite, basalt and claystone to form a final
- 25 blend containing limestone, dolomite, basalt and claystone.
7. A method for producing a soil additive comprising the steps of
  - a. conducting analysis of mineralogy and/or crystalline structure of bulk rocks to determine the applicability of the bulk rocks to be used as a limestone source rock, a basalt source rock, a dolomite source
  - 30 rock or a claystone source rock,
  - b. crushing each of the source rocks identified in the analysis,
  - c. size analysis of each of the source rocks to determine whether each source rock is of a predetermined size,

- d. grinding of each of the source rocks, and
- e. blending of the source rocks to give a final blend containing limestone, basalt, dolomite and claystone.

8. The method for producing a soil additive as claimed in claim 7  
5 wherein each of the source rocks are processed in a separate processing stream, being a limestone processing stream, a basalt processing stream, a dolomite processing stream and a claystone processing stream, to produce a product, the products from each separate processing stream combined to form the final blend.
- 10 9. The method for producing a soil additive as claimed in claim 7 wherein the crushing step reduces the source rocks to a particular size fraction.
10. The method for producing a soil additive as claimed in claim 7 wherein the size fraction is at or below 20mm.
- 15 11. The method for producing a soil additive as claimed in claim 8 wherein after the crushing stage, each processing stream is subjected to size determination to ensure the correct size fraction is obtained during the crushing stage.
12. The method for producing a soil additive as claimed in claim 11  
20 wherein the basalt and dolomite processing streams are subjected to neutralising value and/or attribute analysis.
13. The method for producing a soil additive as claimed in claim 11 wherein each processing stream is subjected to at least one drying step to remove at least some moisture from the respective processing streams.
- 25 14. The method for producing a soil additive as claimed in claim 7 wherein during the grinding step, each processing stream is finely ground to give a grinding size fraction in the size range of 0.030 millimetres up to 1.5 millimetres.
15. The method for producing a soil additive as claimed in claim 14  
30 wherein size fraction ranges of the basalt processing stream is from 0.030 millimetres to 0.080 millimetres after the grinding step.
16. The method for producing a soil additive as claimed in claim 14 wherein size fraction ranges of the limestone processing stream is from 0.030

millimetres to 0.090 millimetres after the grinding step.

17. The method for producing a soil additive as claimed in claim 14 wherein size fraction ranges of the dolomite processing stream is from 0.030 millimetres to 0.5 millimetres after the grinding step.

5 18. The method for producing a soil additive as claimed in claim 14 wherein size fraction ranges of the claystone processing stream is from 0.040 millimetres to 0.5 millimetres after the grinding step.

19. The method for producing a soil additive as claimed in claim 7 wherein after the grinding stage, the limestone processing stream is tested for  
10 neutralising value and/or attribute analysis to ensure a grain size within the range of 0.030 millimetres to 0.090 millimetres.

20. A soil additive according to claim 1 wherein the final product contains at least basalt, limestone dolomite and claystone in a ratio of approximately 8:3:1:1.